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Carl Hagenbeck's Trade in Reptiles, His Historical Reptile Exhibitions, and His Herpetological Legacy*

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"*The main suppliers of exotic reptiles are Umlauff in Hamburg (Spielbudenplatz 8) and Carl Hagenbeck from there. Almost all imported reptiles can be obtained from these two important continental companies.*"

Translated quotation from Johann von Fischer (1884: 101): *Das Terrarium, seine Bepflanzung und Bevölkerung — Ein Handbuch für Terrarienbesitzer und Tierhändler* [The terrarium, its planting and inhabitants — a handbook for terrarium owners and animal dealers].

Abstract. The name of Carl Hagenbeck is commonly linked to the Hamburg Zoo, a circus, the large-scale animal trade, and the controversial historical ethnological shows, so-called human zoos or Völkerschauen. All these enterprises were involved with animals, whether they were wild or domestic. Although reptiles, and particularly amphibians, appear to have played no major role in Carl Hagenbeck's international endeavors, this paper aims to explore his historical impact on herpetologists, reptile keepers, and the public, particularly in German-speaking countries. I will demonstrate that historical studies of herpetology and herpetoculture have neglected Carl Hagenbeck's firm and will reveal the significant role that large reptile species, such as crocodiles, alligators, and giant snakes played in his various endeavors, but especially in his reptile exhibitions, which have received little attention from historians and herpetologists to date. Therefore, Carl Hagenbeck's influence on scientists, animal keepers, and the general public deserves greater recognition.

Key words: Animal trade, Vienna Prater, zoological gardens, Tierpark Hagenbeck, giant reptiles, natural history museums

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Carl Hagenbeck — A Hanseatic Success Story

The traditional Hanseatic family business of Carl Gottfried Wilhelm Heinrich Hagenbeck (1844–1913; Fig. 1) bears a well-known name, though it is rarely associated with herpetology or herpetoculture.[1] Instead, the name Hagenbeck is more commonly linked to the Hamburg Zoo,[2] a circus, the large-scale animal trade, and controversial historical ethnological shows, so-called human zoos or Völkerschauen (Dittrich and Rieke-Müller 1998, Thode-Arora 1989). As Carl Hagenbeck is generally well known, only a short summary of his biography will be provided here.[3]

Carl Hagenbeck came from a family of fishmongers in the Hanseatic city of Hamburg. In 1848, his father acquired six seals and presented them on Spielbudenplatz, which today is close to the infamous Reeperbahn in the St. Pauli district. In the mid-19th century, Spielbudenplatz was a vibrant place just outside the city gates. It was originally characterized by simple wooden huts (Spielbuden) for artists and jugglers. The family's little menagerie gradually developed into a thriving animal trade, in which Carl worked from an early age. In 1866, at the age of 21, he took over his father's business and turned it into one of the leading animal trading companies. In 1874, he opened 'Carl Hagenbeck's Thierpark' [animal park] at Neuer Pferdemarkt 13, which he advertised in the popular bird lover's magazine "Die gefiederte Welt" (The feathered world) with elephants, giraffes, lions, and—most notably—"40 giant snakes up to 20 feet long" (Fig. 2). The following year, Hagenbeck expanded into the ethnological exhibition business, organizing his first show featuring a small group of Scandinavian Sámi. In doing so, he tapped into the general public's fascination and curiosity for all things exotic and foreign. Due to its success, various other

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Fig. 1. Carl Hagenbeck (1844–1913), the famous Hamburg animal dealer, ethnological show organizer, and zoo founder.

ethnological groups were assembled in subsequent years and presented alongside their customs, traditions, and farm animals throughout Europe. Hagenbeck also opened his first circus in 1887.

Due to a lack of space, the company was relocated to another site and "the world's first zoo without bars and fences" was opened in the Prussian town of Stellingen—then still outside the city area of Hamburg—in 1907 (Hagenbeck 1909). From the outset, the zoo also had a reptile house in which giant snakes and crocodiles were exhibited. At its opening, 32 alligators and eight pythons from Borneo were housed there (Dittrich and Rieke-Müller 1998: 204f). One year later, Hagenbeck (1909) displayed 36 tortoises, 12 monitor lizards, iguanas, and other lizards, 11 crocodiles and alligators, as well as 68 snakes. From summer 1911, additional amphibians and reptiles were exhibited in the new insect house under the management of Friedrich "Fritz" Dörries (1822–1917).[4] This attraction was constantly advertised. For example, Ludwig Zukowsky (1888–1965), Hagenbeck's scientific assistant at the zoo, reported that chameleons were exhibited alongside stick insects to demonstrate mimicry (Zukowsky 1914: 231). In another instance, the Amazonian mata mata (*Chelus fimbriata*) was mentioned as a herpetological rarity and depicted in a photograph.

After Carl Hagenbeck's death in 1913, his sons and grandsons continued the family business, successfully guiding it through the disasters of the 20th century (Hagenbeck 1955), even though the animal trade was gradually phased out after World War II. To celebrate the zoo's 100th anniversary in 2007, the new "Tropen-Aquarium" (tropical aquarium) was opened to the public, replacing the "Troparium", which had been open since 1960 exhibiting giant reptiles such as alligators, crocodiles, Galapagos giant tortoises, and huge water monitor lizards next to many other tropical species (Fig. 3). In keeping with tradition, the new building also features various amphibian and reptile species, including a large enclosure for Nile crocodiles at the center.

212 Die gefiederte Welt. Zeitschrift für Vogelliebhaber, -Züchter und -Händler. Nr. 26

C. Hagenbeck's

Handelsmenagerie,

das größte derartige Geschäft der Welt,

jetzt

[385] **Hamburg,**

St. Pauli, Neuer Pferdemarkt Nr. 13.

Einem hochgeehrten hiesigen und fremden Publicum die ergebene Anzeige, daß, weil die bisher Spielbudenplatz Nr. 19, benutzten Räumlichkeiten sich als unzureichend erwiesen, seit dem 1. Mai cr. meine Handelsmenagerie nach dem **Neuen Pferdemarkt Nr. 13** verlegte, während das Vogelgeschäft nach wie vor in dem alten Etablissement, Spielbudenplatz Nr. 19 verbleibt.

In den fast sämmtlich neu aufgeführten freundlichen und geräumigen Gebäuden und Volièren, wie sie die ca. 80,000 Quadratfuß großen Parkanlagen des heutigen Etablissements zeigen, sind die Thiere ähnlich den zoologischen Gärten untergebracht und befinden sich außer **15 Löwen** augenblicklich dort:

Königstiger, Panther, Leoparden, Bären

und andere Raubthiere,

Elephanten, Rhinoceros, Giraffen, Antilopen, amerikan. Riesenhirsche, Büffel,

eine Anzahl

afrikanischer und amerikanischer Strauße, verschiedene Kraniche,

40 Riesenschlangen

bis zu 20 Fuß Länge

vorräthig.

Ende dieses Monats trifft auch der

dritte diesjährige Thiertransport

(diese drei Transporte bildeten ursprünglich einen einzigen, der unter andern Thieren **27 Giraffen** zählte, doch war es nicht möglich, diese colossale Anzahl wilder Thieer mitsammen durch die Wüste zu bringen und eine Theilung dringend geboten) hier ein, welcher außer **16 großen Giraffen, Antilopen, Elephanten, Löwen, Leoparden, Hyänen** und viele andere seltene Thiere und **Vögel** auf hier bringt.

Bei günstiger Witterung werden stets Giraffen, Elephanten, Rhinoceros, Strauße, Kraniche 2c. in dem eigens dazu umzäunten Raume ins Freie gelassen.

Louis Gerschel Verlagsbuchhandlung (Gustav Gottmann) in Berlin. — Druck: W. Elsner, Berlin, Wilhelmstraße 32.

Fig. 2. Advertisement from the popular magazine "*Die gefiederte Welt*" (the feathered world) announcing the relocation of "Carl Hagenbeck's Thierpark" (animal park) on 1 May 1874 to Neuer Pferdemarkt No. 13 in Hamburg St. Pauli. Large giant snakes were particularly emphasized ("40 giant snakes up to 20 feet long").

Reptiles in Carl Hagenbeck's Animal Trading Company

The earliest information available to me comes from Meyer (1873), who described a walk through Hagenbeck's trade menagerie in Hamburg[5] ("Ein Gang durch die C. Hagenbeck'sche Handels-Menagerie") on 8 October the previous year. Although reptiles are only mentioned in passing during the tour—namely, that "various large, closed boxes containing large snakes […] were set up in the inner room"—Hagenbeck provided the reporter with two directories from

Fig. 3. The so-called "Troparium" at Hagenbeck Zoo was opened in 1960 and exhibited giant reptiles such as alligators, crocodiles, Galapagos giant tortoises, and huge water monitor lizards, as well as many other tropical species. In 2007, on the occasion of the zoo's 100th anniversary, it was replaced by the new "Tropen-Aquarium" (tropical aquarium), which also houses many amphibians and reptiles.

which more detailed information about the conditions at the time can be obtained. According to this, the Hanseatic trading house had as of 1 November that year, among others, "two alligators [presumably *Alligator mississippiensis*], measuring 4–5 feet in length. Three *Boa constrictor*, 5–7 feet long; Six Indian pythons [*Python reticulatus*, *P. molurus* or *P. bivittatus*], 6–11 feet long, [and] five Senegal pythons [*P. sebae*], 7–14 feet[6] long [i.e. approximately 200–400 cm]." The second interesting list summarizes the animals sold by Carl Hagenbeck between 1866 and 1872. In addition to "61 elephants, 36 giraffes and 3 rhinoceroses", it lists "342 large snakes and 252 crocodiles", among many others.

Only a few years later, the total number of animals imported by Hagenbeck had reached 200 elephants, 300 giraffes and 10 rhinos, among many others. The number of reptiles imported was estimated at around 2,000 (Anonymous 1880). This report was accompanied by a woodcut based on a drawing depicting the unpacking and weighing of a shipment of newly arrived reptiles at the premises of C. Hagenbeck's menagerie in Hamburg (Fig. 4). The shipment consisted of charismatic large reptile species such as various giant snakes (*Boa constrictor*, different pythons, and an anaconda supposedly measuring 25 feet, i.e. more than 7 meters), about 20 alligator and snapping turtles (allegedly weighing up to 144 pounds, i.e. 65kg), as well as more than 80 Mississippi alligators and black caimans.

By 1886, Hagenbeck's company had attracted so much international attention that a reporter from London's '*The Era'* magazine visited and interviewed him (Anonymous 1886). At that time, "the snake collection included thirty-two snakes, amongst them being an Indian python [*Python reticulatus*?], 22ft. long [= 6.7m], and weighing 130lbs. There were also some specimens of the giant lizard [*Varanus salvator*] (…)." Supposedly, these were "(…) the first which have been brought [alive] to Europe. The biggest, an enormous creature, measuring 7ft. 5in. long [= 2.2m], and weighing 80lbs., was caught in the swamps near Calcutta."[7] In addition, it was mentioned that Hagenbeck generally offered skeletons and dead animals to museums (see below).[8]

Johann von Fischer (1849/50–1901), who is often referred to as the founder of terrarium science and herpetoculture thanks to his pioneering book "*Das Terrarium, seine Bepflanzung und Bevölkerung – Ein Handbuch für Terrarienbesitzer und Tierhändler*" (von Fischer 1884), appears to have had extensive knowledge of the (Hamburg) animal and pet trades, thanks to his own experiences in animal husbandry and through business connections.[9] At the beginning of the systematic section on "The Population of Terrariums" (die Bevölkerung der Terrarien) and their sources of supply, he wrote (in translation): "Umlauff in Hamburg (Spielbudenplatz 8) and Carl Hagenbeck are the main suppliers of exotic reptiles. Almost all imported reptiles can be obtained from these two important continental companies" (von Fischer 1884).[10]

In the following, von Fischer (1884), who according to his own statement had almost 20 years of experience in the keeping and breeding of amphibians and reptiles, wrote the green iguana, among other things, "(...) is imported every year by C. Hagenbeck, Ch. Jamrach, Abrahams, [Heinrich] Möller [also in Hamburg, Spielbudenplatz 21], J.T.G. [sic] Umlauff and many others (...)." He also stated that "the few snake species found in the trade can be easily and cheaply obtained from Karl Hagenbeck and J.F.G. Umlauff in Hamburg (...)."

As outlined above, the widespread sensationalism and circulation of horror stories about man-eating giant reptiles, crocodiles, alligators, and giant snakes played an important role in Carl Hagenbeck's animal trading business.[11] Accordingly, Hagenbeck (1909) devoted several pages in his biography to describing the extraordinary devour performance of large specimens, recounting, for instance, how he had narrowly escaped with his life several times when attacked by a giant snake (Fig. 5). He also described how snake tamers were part of every circus and menagerie in the 19th century (see Koch et al. 2017 for an example of an Indian ethnological show), and stated receiving 276 *Python bivittatus* in one day,[12] which were sold "like hot cakes, mostly to America." Elsewhere in his biography, Hagenbeck (1909) summarized that "(…) more than 2,000 crocodiles had passed through his hands."[13] In contrast to the living goods, he mentioned

C. HAGENBECK
HANDELS-MENAGERIE
HAMBURG-STPAULI
NEUER PFERDEMARKT 19
Auspacken und Abwiegen eines Reptilien-Transportes in den Geschäftsräumen der Handels-Menagerie von C. Hagenbeck in Hamburg. Originalzeichnung von Jean Bungartz. (S. 159.)
Heft 7.
Das Buch für Alle.
157

Fig. 4. Woodcut of a historical scene from Anonymous (1880) with the translated caption "Unpacking and weighing a shipment of reptiles at the premises of C. Hagenbeck's commercial menagerie in Hamburg. Original drawing by Jean Bungartz [1879]." See the text for more details about this shipment. In the center at the scale is Carl Hagenbeck, next to him with a net is his father, the company founder (Niemeyer 1972.

two large stuffed gharials as outstanding specimens, which travelled through Europe as part of his reptile menagerie and which were finally sold to the Natural History Museum Vienna. They are still a special attraction in the museum's reptile hall today (see below and Fig. 14).

By comparing several historical price lists from "Carl Hagenbeck's Handelsmenagerie und Tierpark" (Hagenbeck's trade menagerie and zoological garden), we can illustrate the range and extent of the reptiles (and amphibians) that he traded. The first price list I came across was published anonymously in 1881 in the popular animal keeping magazine "*Der Zoologische Garten*" (the zoological garden), which still exists today. The reptiles (including amphibians) appear at the end of the list, with an eight-foot-long "Siamese crocodile" (presumably *Crocodylus siamensis*), advertised as a great rarity for 750 marks, at the beginning. This is followed by 15 alligators measuring between 1.25 and 6 feet in length and priced between 20 and 100 marks.[14] Six unspecified "spiny lizards from the Cap" (perhaps *Smaug* sp.), the only lizard species on offer, cost 20 marks each, while four bullfrogs, the only amphibians, were sold for 25 marks each.[15] Nine snake species follow, with giant snakes clearly dominating. Among them was a "Javanese giant snake" (*Python schneideri* [= *P. reticulatus*]), 14 feet long, priced at 600 marks. Twenty-six *Python bivittatus*, measuring between 7 and 11 feet, were priced at between 100 and 250 marks; eight *Python sebae*, measuring between 9 and 16 feet, were priced at between 100 and 750 marks. A total of 53 "tiger pythons" were listed at between 60 and 100 marks; 12 "Königs-Pythons" (*Python regius*) at between 25 and 40 marks each; and 14 *Boa constrictor* at between 30 and 150 marks. Additionally, a 9-foot-long "water snake, *Eunectes murinus*" was offered for 200 marks, while a "Brazilian rattlesnake" cost 60 marks. The cheapest of all was the "Hornviper" (probably *Cerastes cerastes*), at only 10 marks.

On another price list published by Carl Hagenbeck in 1883 (see Fig. 6 and Leutemann 1883: 38) the reptiles were listed under the heading "Alligators" after the mammals but prior to the birds. Mississippi alligators were offered in various sizes, from 2–10 feet (approx. 57–280 cm) in length, for 10 to 350 marks. This would correspond to about 80–2,800 euros or 95–3,300 US-dollars today. A 6-foot-long "Mexican

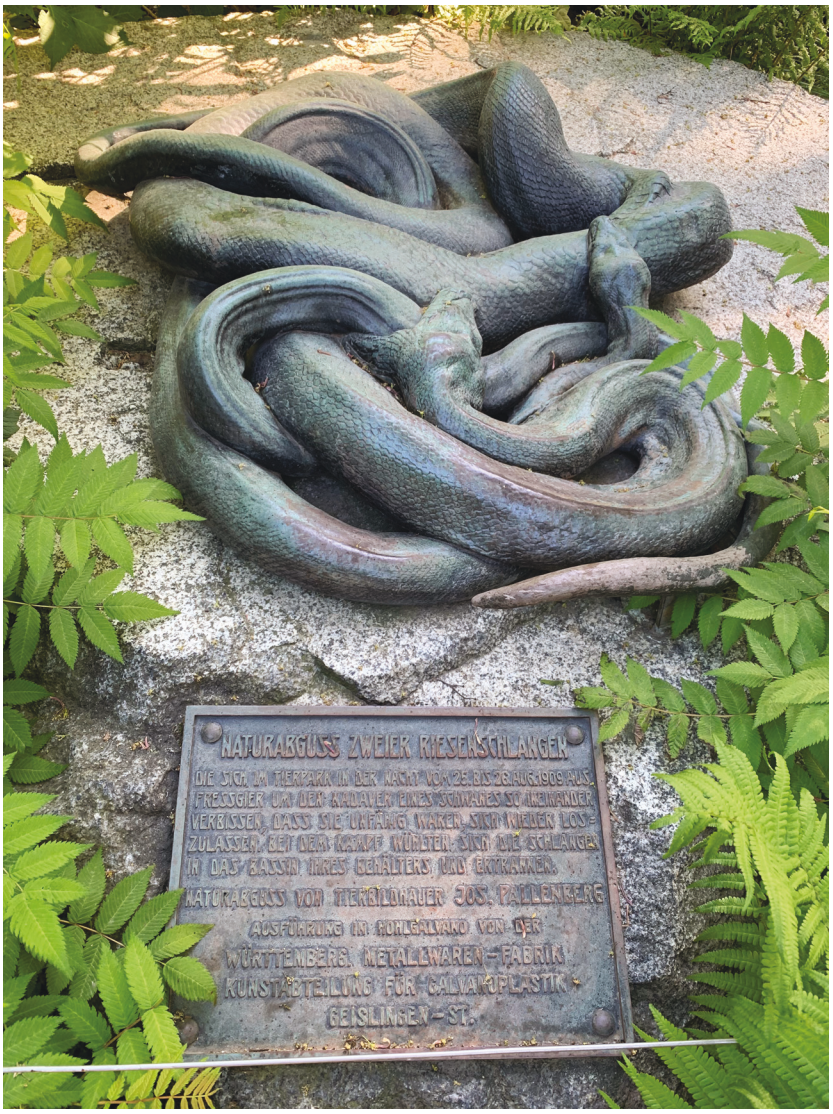

NATURABGUSS ZWEIER RIESENSCHLANGEN
DIE SICH IM TIERPARK IN DER NACHT VOM 25. BIS 26. AUG. 1909 AUS
FRESSGIER UM DEN KADAVER EINES SCHWANES SO MIEINANDER
VERBISSEN, DASS SIE UNFÄHIG WAREN, SICH WIEDER LOS-
ZULASSEN. BEI DEM KAMPF WÜHLTEN SIE DIE SCHLANGEN
IN DAS BASSIN IHRES BEHÄLTERS UND ERTRANKEN.
NATURABGUSS VON TIERBILDHAUER JOS. PALLENBERG
AUSFÜHRUNG IN HOHLGALVANO VON DER
WÜRTTEMBERG. METALLWAREN-FABRIK
KUNSTABTEILUNG FÜR GALVANOPLASTIK
GEISLINGEN-ST.

Fig. 5. Bronze sculpture of two giant snakes in Hagenbeck's zoo. The translation of the plaque reads as follows: "Natural casts of two giant snakes which, out of greed, bit into each other over the carcass of a swan in the zoo on the night of 25th to 26th August 1909 to such an extent that they were unable to let go. During the fight, the snakes burrowed themselves into the basin of their container and drowned. Natural cast by animal sculptor Jos[ef]. Pallenberg [1882–1946]. Execution in hollow galvanisation by Württembergische Metallwaren-Fabrik. Art department for galvanoplastics. Geislingen-Stuttgart."

crocodile" was marked as already sold for 125 marks. Next came several alligator or common snapping turtles (*Macrochelys* sp. and *Chelydra* sp.) weighing 30–125 pounds (i.e., 13.6–56.7 kg) or 4–26 pounds (i.e., 1.8–11.8 kg), and "Mexican swamp turtles"[16] weighing 4–7 pounds (i.e., 1.8–3.2 kg), for which 1–2 marks per pound were charged. While the alligators and turtles were clearly focused on North America, the giant snakes on offer came from various continents. In terms of numbers, "giant pythons", probably reticulated pythons, dominated, ranging from 8–23 feet (i.e. approx. 230–650 cm) in length and costing 100–2,000 marks, the equivalent of around 800–16,000 euros or 940–18,800 dollars, respectively! By contrast, "tiger pythons" of 7–8 feet in length (probably *Python molurus* and *P. bivittatus*), also from Asia, cost only 60–80 marks; "*Python-Sebrae"* (sic!) of a similar length from Africa cost 100 marks and *Boa constrictor*, the only reptile species besides the rock python to be listed with a scientific name, cost 40 marks. For comparison, the most expensive item in this price list was an adult female hippopotamus at 18,000 marks (around 144,000 euros or 170,000 dollars), while two rhinoceroses were available for 10,000–12,000 marks each (i.e., 80,000–96,000 euros or 94,000–113,000 dollars, respectively)! However, according to the catalogue, all three specimens had already been sold.

Fifteen years later, by December 1898, Carl Hagenbeck's range of species traded had grown considerably, both geographically and taxonomically (Fig. 7). This expansion was evident not only in the reptile section, which had been moved again to the end of a six-page price list, but also in the variety of other species offered. The list began with "75 [Mississippi] alligators" of various sizes, ranging from 1 to 10.5 feet in length, priced at 10 to 500 marks each (approximately 80 to 4,000 euros or 95–4,700 dollars). Next came two "Indian crocodiles", 6–7 feet long, priced at 150 and 170 marks respectively, a crocodile from Ceylon, 7 feet long, priced at 170 marks, five Nile crocodiles, 2.5–4 feet long, priced at 35–60 marks, and two "Spitzschnauz-Krokodile", probably *Crocodylus acutus*, with similar specifications (Hagenbeck 1898). While the crocodiles were listed almost exclusively by their German common names, also the scientific names were used for all turtles and squamates, which was otherwise only the case for a few hoofed mammals and kangaroos on the list. Several monitor lizard species from Asia, Africa and Australia were new additions to the reptile range, namely *Varanus salvator*, *V. varius*, *V. griseus*, *V. dumerilii* (followed by a question mark indicating that this identity was uncertain), and *V. niloticus*. Unlike the crocodiles and giant snakes, whose lengths were measured in feet, the monitor lizards were measured in metric units. Three water monitor lizards, called "Cobragoya" and presumably originating from Sri Lanka, cost 250 marks each at 1.5 meters in length, while eight desert monitor lizards were available for as little as five marks.[17] In addition, two South American "*Tejus Teguixin*", measuring between 0.65 and 1 meters in length, were offered at 30 and 45 marks. Seven Australian spiny-tailed skinks (*Egernia cunninghami*) and twelve "*Cyclodus* [= *Tiliqua*] *gigas*" were offered at

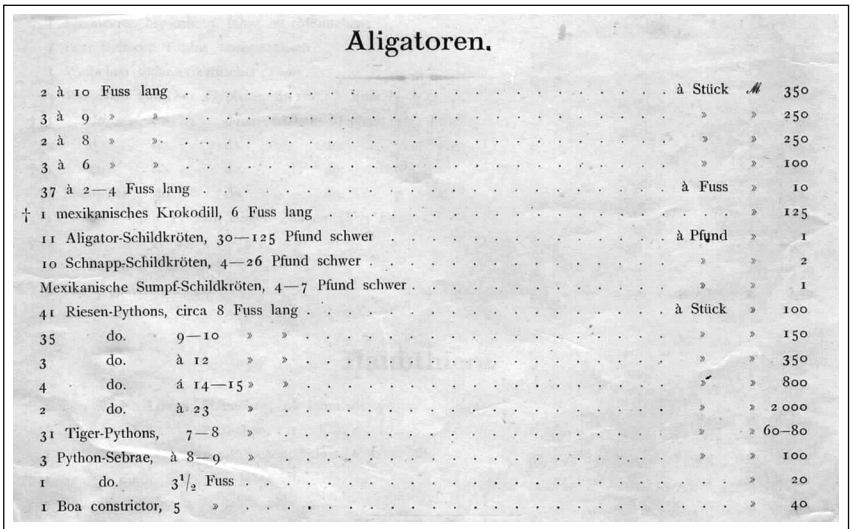
15–20 marks. According to Zukowsky (1954), even years later, bluetongue skinks, shingleback lizards, and Cunningham's skinks made up the majority of 300 Australian reptiles that he had to receive and identify on his first day at Hagenbeck, on 28 June 1913, in the port of Hamburg, along with many other animals from Down Under such as kangaroos, emus, and hundreds of small birds.

Whereas only two large North American turtle species were represented in Hagenbeck's trade menagerie in 1883, by 1898 twelve species from the Americas, Europe, Asia, and Australia were present. The European species predominated in terms of quantity, with 266 *Clemmys* (= *Mauremys*) *caspica*, 158 "*Emis luttaria"* (= *Emys orbicularis*) and 207 *Testuda* (sic) *mauritanica* (presumably *Testudo graeca*) being sold. These were sold for just 0.50–2 marks each. Meanwhile, sixteen Australian snake-necked tortoises ("*Chelodina longicollis*") cost 10 marks each, eight South American "*Platemys geoffroana*" (= *Phrynops geoffroanus*), 10–20 marks each, and two "radiated tortoises, *Testudo* [= *Astrochelys*] *radiata*", with an upper shield length of 0.5 meters, 25 marks each.

The giant snakes still dominated among the snakes, with twelve "*Python reticulata*" [sic!] at similar prices to those in 1883 (see above). The largest specimens, measuring 23 feet in length, still commanded a price of 1,500 marks. Also from Southeast Asia, three *Python bivittatus* and five *Python molurus* were offered at a maximum of 400 and 150 marks, respectively. In addition, two African *Python sebae* were listed for 40 and 75 marks (6 and 10 feet long, respectively), as well as six South American *Boa constrictor* for 35–60 marks and one *Boa occidentalis* (today a subspecies of the previous species). Nine *Boa* (= *Acrantophis*?) *madagascariensis* were listed at up to 90 marks each. Four "Madagascar sword snakes (*Corallus* [= *Sanzinia*] *madagascariensis*)" of 5–6 feet in length were also offered at 60 marks each. The final item on the price list, and among the reptile section, was the only amphibian species: a 90 cm giant salamander priced at 100 marks. The names of all the boas and pythons, as well as this extraordinary amphibian species, are highlighted in bold in the typeface, which otherwise only applies to the alligators and crocodiles at the beginning.

On a fourth, seventeen-page price list from 1914 (Fig. 8), so one year after Carl Hagenbeck's death, the 'Reptiles' appear on the last two pages (Hagenbeck 1914). Compared to the other vertebrate groups traded, these seem to have lost importance. This time, the "Snakes" section is at the beginning and features two "Hieroglyphenschlangen, *Python sebae*",[18] measuring 14–16 feet and priced at 550 marks each. This is followed by an 8-foot-long "Tigerschlange, *Python molurus*" priced at 80 marks, and various "Königsschlangen, *Boa constrictor*", priced from 25 marks for a three-foot specimen to 90 marks for a nine-foot specimen. The final snake species offered was the reticulated Python (*Python reticulatus*), five specimens measuring between 14 and 22 feet, priced between 250 and 1,800 marks.

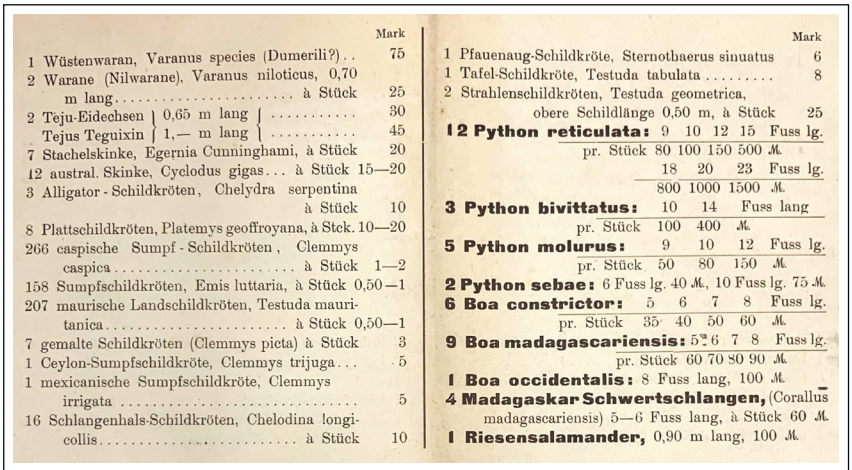
Zukowsky (1954), who worked for Hagenbeck from 1913 until 1931, recalled that "giant snakes usually arrived in shipments of 200. In the reptile house's keeper's corridor, there was an 8-metre-long measuring device on the wall, divided into 25-centimetre increments, which was used to measure the snakes. The reptiles were taken out of the transport containers one by one, stretched out by several keepers and held against the measuring scale, their length noted, and animals



Aligatoren.

2 à 10 Fuss lang	à Stück	ℳ	350
3 à 9 » »	»	»	250
2 à 8 » »	»	»	250
3 à 6 » »	»	»	100
37 à 2—4 Fuss lang	à Fuss	»	10
† 1 mexikanisches Krokodill, 6 Fuss lang		»	125
11 Aligator-Schildkröten, 30—125 Pfund schwer	à Pfund	»	1
10 Schnapp-Schildkröten, 4—26 Pfund schwer	»	»	2
Mexikanische Sumpf-Schildkröten, 4—7 Pfund schwer	»	»	1
41 Riesen-Pythons, circa 8 Fuss lang	à Stück	»	100
35 do. 9—10 » »	»	»	150
3 do. à 12 » »	»	»	350
4 do. á 14—15 » »	»	»	800
2 do. à 23 »	»	»	2 000
31 Tiger-Pythons, 7—8 »	»	»	60–80
3 Python-Sebrae, à 8—9 »	»	»	100
1 do. $3^1/_2$ Fuss	»	»	20
1 Boa constrictor, 5 »	»	»	40

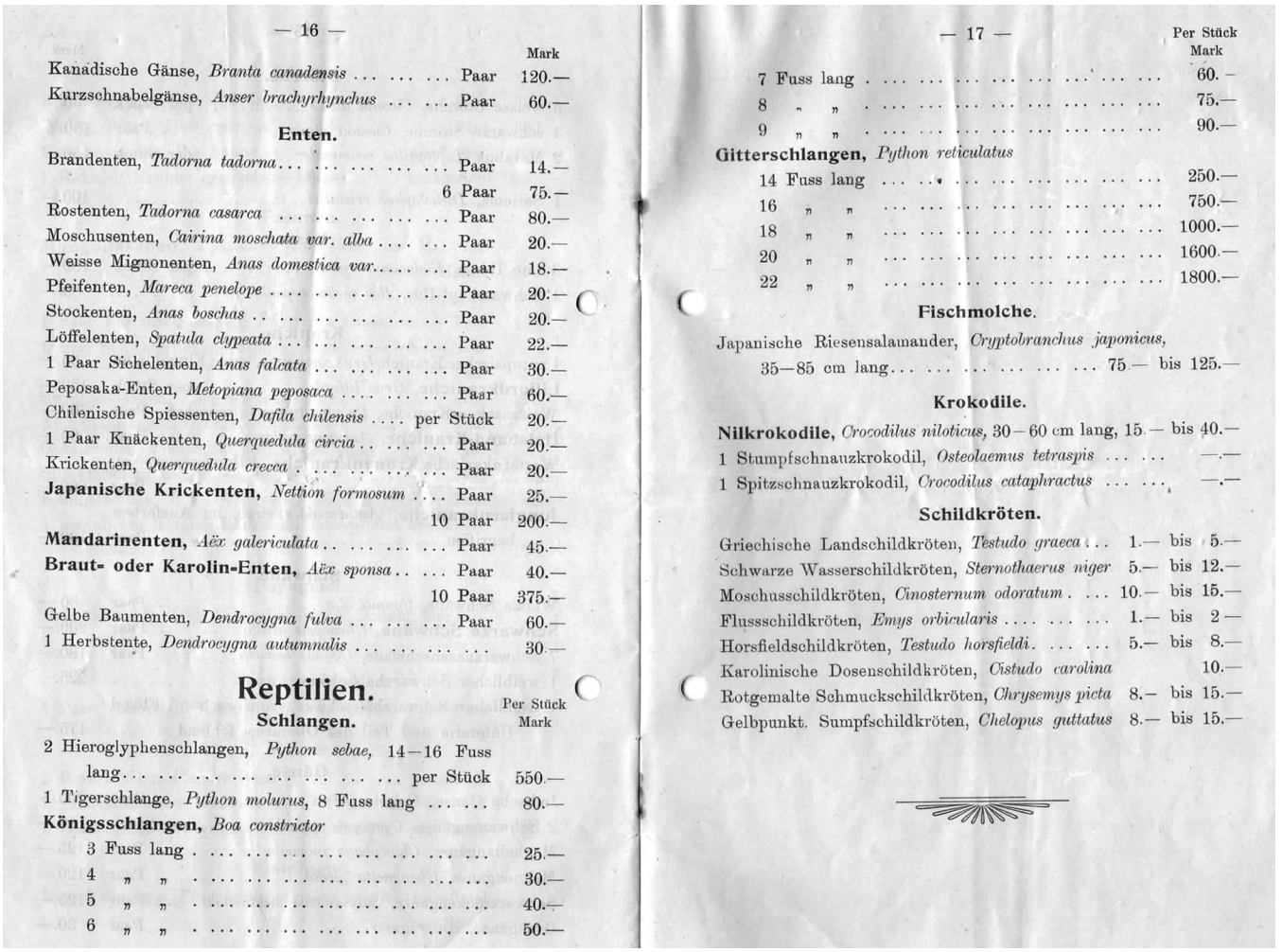
Fig. 6. Extract on "Alligators" respectively reptiles from a "Preis-Verzeichniss jetzigen Thiervorrathes" (price list of current animal stock) of the Carl Hagenbeck company dated 16 October 1883. For more information, see the text. Courtesy Hagenbeck Archive, Hamburg.



	Mark
1 Wüstenwaran, Varanus species (Dumerili?)	75
2 Warane (Nilwarane), Varanus niloticus, 0,70 m lang à Stück	25
2 Teju-Eidechsen | 0,65 m lang |	30
Tejus Teguixin | 1,— m lang |	45
7 Stachelskinke, Egernia Cunninghami, à Stück	20
12 austral. Skinke, Cyclodus gigas … à Stück	15—20
3 Alligator-Schildkröten, Chelydra serpentina à Stück	10
8 Plattschildkröten, Platemys geoffroyana, à Stck.	10—20
266 caspische Sumpf-Schildkröten, Clemmys caspica à Stück	1—2
158 Sumpfschildkröten, Emis luttaria, à Stück	0,50—1
207 maurische Landschildkröten, Testuda mauritanica à Stück	0,50—1
7 gemalte Schildkröten (Clemmys picta) à Stück	3
1 Ceylon-Sumpfschildkröte, Clemmys trijuga	5
1 mexicanische Sumpfschildkröte, Clemmys irrigata	5
16 Schlangenhals-Schildkröten, Chelodina longicollis à Stück	10

	Mark
1 Pfauenaug-Schildkröte, Sternothaerus sinuatus	6
1 Tafel-Schildkröte, Testuda tabulata	8
2 Strahlenschildkröten, Testuda geometrica, obere Schildlänge 0,50 m, à Stück	25
12 Python reticulata: 9 10 12 15 Fuss lg. pr. Stück 80 100 150 500 ℳ. 18 20 23 Fuss lg. 800 1000 1500 ℳ.	
3 Python bivittatus: 10 14 Fuss lang pr. Stück 100 400 ℳ.	
5 Python molurus: 9 10 12 Fuss lg. pr. Stück 50 80 150 ℳ.	
2 Python sebae: 6 Fuss lg. 40 ℳ., 10 Fuss lg. 75 ℳ.	
6 Boa constrictor: 5 6 7 8 Fuss lg. pr. Stück 35 40 50 60 ℳ.	
9 Boa madagascariensis: 5 6 7 8 Fuss lg. pr. Stück 60 70 80 90 ℳ.	
1 Boa occidentalis: 8 Fuss lang, 100 ℳ.	
4 Madagaskar Schwertschlangen, (Corallus madagascariensis) 5—6 Fuss lang, à Stück 60 ℳ.	
1 Riesensalamander, 0,90 m lang, 100 ℳ.	

Fig. 7. Extract about lizards, turtles, (giant) snakes and one giant salamander from a price list by Carl Hagenbeck dated 1898. Courtesy Hagenbeck Archive, Hamburg.



— 16 —

		Mark
Kanadische Gänse, *Branta canadensis*	Paar	120.—
Kurzschnabelgänse, *Anser brachyrhynchus*	Paar	60.—
Enten.		
Brandenten, *Tadorna tadorna*	Paar	14.—
	6 Paar	75.—
Rostenten, *Tadorna casarca*	Paar	80.—
Moschusenten, *Cairina moschata var. alba*	Paar	20.—
Weisse Mignonenten, *Anas domestica var.*	Paar	18.—
Pfeifenten, *Mareca penelope*	Paar	20.—
Stockenten, *Anas boschas*	Paar	20.—
Löffelenten, *Spatula clypeata*	Paar	22.—
1 Paar Sichelenten, *Anas falcata*	Paar	30.—
Peposaka-Enten, *Metopiana peposaca*	Paar	60.—
Chilenische Spiessenten, *Dafila chilensis*	per Stück	20.—
1 Paar Knäckenten, *Querquedula circia*	Paar	20.—
Krickenten, *Querquedula crecca*	Paar	20.—
Japanische Krickenten, *Nettion formosum*	Paar	25.—
	10 Paar	200.—
Mandarinenten, *Aëx galericulata*	Paar	45.—
Braut- oder Karolin-Enten, *Aëx sponsa*	Paar	40.—
	10 Paar	375.—
Gelbe Baumenten, *Dendrocygna fulva*	Paar	60.—
1 Herbstente, *Dendrocygna autumnalis*		30.—

Reptilien.

	Per Stück Mark
Schlangen.	
2 Hieroglyphenschlangen, *Python sebae,* 14—16 Fuss lang	per Stück 550.—
1 Tigerschlange, *Python molurus,* 8 Fuss lang	80.—
Königsschlangen, *Boa constrictor*	
3 Fuss lang	25.—
4 „ „	30.—
5 „ „	40.—
6 „ „	50.—

— 17 —

	Per Stück Mark
7 Fuss lang	60.—
8 „ „	75.—
9 „ „	90.—
Gitterschlangen, *Python reticulatus*	
14 Fuss lang	250.—
16 „ „	750.—
18 „ „	1000.—
20 „ „	1600.—
22 „ „	1800.—
Fischmolche.	
Japanische Riesensalamander, *Cryptobranchus japonicus,* 35—85 cm lang	75.— bis 125.—
Krokodile.	
Nilkrokodile, *Crocodilus niloticus,* 30—60 cm lang,	15.— bis 40.—
1 Stumpfschnauzkrokodil, *Osteolaemus tetraspis*	—.—
1 Spitzschnauzkrokodil, *Crocodilus cataphractus*	—.—
Schildkröten.	
Griechische Landschildkröten, *Testudo graeca*	1.— bis 5.—
Schwarze Wasserschildkröten, *Sternothaerus niger*	5.— bis 12.—
Moschusschildkröten, *Cinosternum odoratum*	10.— bis 15.—
Flussschildkröten, *Emys orbicularis*	1.— bis 2.—
Horsfieldschildkröten, *Testudo horsfieldi*	5.— bis 8.—
Karolinische Dosenschildkröten, *Cistudo carolina*	10.—
Rotgemalte Schmuckschildkröten, *Chrysemys picta*	8.— bis 15.—
Gelbpunkt. Sumpfschildkröten, *Chelopus guttatus*	8.— bis 15.—

Fig. 8. The last two pages with the "Reptiles" of a seventeen-page price list from 1914 of the Carl Hagenbeck company. Compared to previous lists, the importance of crocodiles had decreased significantly, only three species were offered. Courtesy Hagenbeck Archive, Hamburg.

of the same length placed in the same containers so that there was no need for lengthy measurements when shipping them. I believe I saw 2000 giant snakes at Hagenbeck (…)."

Once again, the only amphibian species in the price list of 1914 was the Japanese giant salamander "*Cryptobranchus* [= *Andrias*] *japonicus*", categorized under the umbrella term "Fischmolche" (fish newts). An undisclosed number of specimens, 35–80 cm long, cost 75–125 marks each.

Compared to previous lists, the importance of crocodiles had decreased significantly. Only three species remained: the Nile crocodile ("*Crocodilus niloticus"*), the "Stumpfschnauzkrokodil" (*Crocodilus* [= *Osteolaemus*] *tetraspis*) and "*Crocodilus* [= *Mecistops*] *cataphractus*". The latter two species were available for 40 euros or 47 dollars each, while the young Nile crocodiles, measuring 30–60 cm in length, were priced at 15–40 marks.

In the 'Turtles' section, large species from previous price lists had disappeared. Instead, only small tortoise and turtle species can be found. The cheapest were "Griechische Landschildkröten" (*Testudo graeca*) at 1–5 marks and "Flussschildkröten" (*Emys orbicularis*) at 1–2 marks. Information on size and the number of specimens available was not provided for these European species, nor for the following species: "Schwarze Wasserschildkröten" (*Sternotherus* [= *Pelusios*] *niger*) from Africa, priced at 5–12 marks, and the North American "Moschusschildkröten" (*Cinosternum odoratum* = *Sternotherus odoratus*), "Karolinische Dosenschildkröten" (*Terrapene carolina*) and "Gelbgepunkt. Sumpfschildkröten" (*Chelopus guttatus* [= *Clemmys guttata*]). Prices varied from 8–15 marks per piece.

Exceptionally, information exists about the origin and conditions of captivity of another tortoise species that was probably first listed in Hagenbeck's catalogues. This is *Testudo horsfieldii*, which was advertised for 5–8 marks. Zukowsky (1954: 11) recounted how the 'Siberian traveler' Neschiwoff (dates unknown) delivered a large shipment of animals to Stellingen on Pentecost Saturday in 1914. Among them were "(...) no fewer than 8,000 Horsfield's tortoises [Fig. 9], neatly packed in sacks (...). Since the Russian insisted on being paid for these animals piece by piece, provided they arrived alive, they had to be counted, and this in the middle of the preparations for the Whitsun festival. There was no choice but for

Fig. 9. This black-and-white photograph, taken from an old photo album in the Hagenbeck Archive, shows hundreds of Horsfield's tortoises which arrived at Hagenbeck's Zoo on Pentecost Saturday in 1914, ready to be sold to visitors. See the text or Zukowsky (1954: 11) for more information. Courtesy Hagenbeck Archive, Hamburg.

Heinrich and Lorenz Hagenbeck, Paul Mehrmann, Fritz Wegner, and myself to set about this task, which was sometimes not entirely appetizing, as the carcasses of these armored animals that had died and decomposed during the journey simply spilled out when lifted, spreading a pungent odor. The turtles were offered for sale to the zoo visitors during the Whitsun holidays, with the largest ones costing 80 pfennigs, the medium-sized ones 50 pfennigs, and the smallest ones 30 pfennigs. As the smallest ones sold like hot cakes, Heinrich Hagenbeck ordered that the turtles be sold in reverse order of price. Despite this increase in price, most visitors still opted for the small animals, so we were left with the large ones."

Although Zukowsky (1954) did not provide any illustrations for his "Little Hagenbeck Memories" ("Kleine Hagenbeck-Erinnerungen"), there is a black-and-white photograph in an old photo album in the Hagenbeck Archive (Fig. 9) showing hundreds, perhaps even thousands, of Horsfield's tortoises, recognizable by their flat, rounded carapaces. The countless tortoises, often piled on top of each other, cover almost the entire approximately 60-square-metre fenced enclosure, which shows no signs of feeding or drinking areas.

Carl Hagenbeck's Reptile Exhibitions

According to Dittrich and Rieke-Müller (1998), reptile exhibitions helped to make the Hagenbeck brand popular—as well as reptiles themselves—before specialized pet shops were established in German cities (Fig. 10). Carl Hagenbeck's first reptile exhibition[19] took place at the Düsseldorf Zoological Gardens during a trade and art exhibition in 1880 under the direction of the herpetophile Johann von Fischer (see above). His second exhibition was held at Dresden Zoo the following year. From 1882 onwards, reptiles from Hamburg were exhibited simultaneously in various European cities. For example, Basel Zoo, which at the time only had five reptiles of four species, exhibited a series of large snakes from Hagenbeck from 27 June to 12 July in that year. Due to bad weather, however, the event was not as successful as expected (Anonymous 1883). Schubert (1883) reported that a collection of giant snakes (which he referred to *Boa constrictor*), owned by the animal dealer Hagenbeck, were a main attraction of the Berlin Aquarium. One of these reptiles – which obviously was not a *B. constrictor* – even laid eggs, from which a young hatched but died after 14 days, as the author went on to recount. In 1879, Hagenbeck had already exhibited an anaconda supposedly measuring eight meters in Berlin (Bellosa et al. 2007). Beginning 1st January 1896, Hagenbeck exhibited various animals at the Copenhagen Zoological Gardens. Among these were several large pythons, sand boas (*Eryx* sp.), and green iguanas, which were particularly notable (Anonymous 1896).

Since Carl Hagenbeck maintained good business relations with the USA, he sought to raise international awareness by attending two world exhibitions on the North American continent: the 1893 World's Columbian Exposition (also known as the Chicago World's Fair) and the 1904 Louisiana Pur-

Fig. 10. Undated historical photograph of the 'First Northern Predator & Reptile Theatre from Hagenbeck's Zoo in Hamburg' ("Erstes Nordisches Raubtier & Reptilientheater aus Hagenbecks Tierpark Hamburg"). According to Dittrich and Rieke-Müller (1998), reptile exhibitions helped to make the Hagenbeck brand popular.

Fig. 11. A historical postcard (before 1905) showing the Vivarium building in Vienna's Prater Park, with the Giant Ferris Wheel in the background. In April 1897, Carl Hagenbeck opened a large reptile exhibition in the building. Wien Museum Inv. No. 234047, CC0.

chase Exposition (informally known as the St. Louis World's Fair). Although reptiles played only a minor role in the 1893 "Hagenbeck's Animal Show" and the 1904 "Carl Hagenbeck: The Zoological Paradise and Trained Animal Circus", giant reptiles were certainly among the species exhibited. According to Pelc (2000), for example, 16 giant snakes and six large lizards (possibly Southeast Asian water monitors) were shipped, among other species, from Hamburg to St. Louis in June 1904. It is unclear whether they were intended for sale or as replacements for deceased specimens. In 1893, hundreds of stuffed animals, probably also including reptiles, were exhibited by Hagenbeck next to his "Ethnographic Show". This zoological collection was prepared by the firm "J. F. G. Umlauff Naturalia Handel und Museum" (natural history trade and museum), which was founded by Johann Friedrich Gustav Umlauff (1833–1889), Hagenbeck's brother-in-law. The two companies collaborated closely, for instance, when Hagenbeck sent animals that had died in his zoo to Umlauf for taxidermy or skeletonization. In this way, even carcasses could be turned into capital.

The following section discusses in detail a large reptile exhibition by Carl Hagenbeck in the Austrian capital, which was already briefly mentioned by Honegger and Blackburn (2022).

Hagenbeck's Reptile Exhibition at the Vienna Vivarium

The Vivarium, a neo-Renaissance building (Fig. 11), which was destroyed in the Second World War and demolished in 1947, was originally constructed as a public aquarium for the 1873 World Exhibition in the Vienna Prater Park, designed by the zoologist Alfred Brehm (1829–1884). Beginning 1878, reptiles and mammals were also exhibited. In 1888, the aquarium was expanded to include a zoo and was renamed "Vivarium" (Reiter 1999). Ernst Perzina (1870–1929), who later became famous as an animal trainer, acted as inspector of the new endeavor. Among many other species, olms (*Proteus anguinus*) from the famous Adelsberg Cave, the Postojna Caves in Slovenia, were exhibited. However, the lack of interest from the Viennese public and the high maintenance costs forced its closure. Various entrepreneurs had previously tried and failed to utilize the building, but on Easter Sunday 1897, Carl Hagenbeck's Largest Reptile Exhibition in the World ("Größte Reptilienausstellung der Welt")[20] moved into the Vivarium (Fig. 12). However, even the creation of an extensive polar landscape in the courtyard of the building, complete with sea lions, penguins, and a young walrus as a special feature, could not compete with Schönbrunn Zoo, which was open to the public free of charge. Consequently, Hagenbeck ceased operations after just 19 months. Nevertheless, the Vivarium reopened in spring 1899, this time under the direction of Inspector Schumann (dates unknown) of the Schönbrunn zoo society. According to Werner (1901), Hagenbeck supplied giant snakes (*Python molurus, Python sebae*, and *Boa constrictor*), crocodiles, and a large consignment from Egypt on

this occasion. Many specimens, however, perished during the winter and the orphaned reptile cages were refilled with birds and small mammals. Although numerous new animals were acquired in spring 1900 to fill the empty enclosures, this did not last long, and the Vivarium finally closed on 1st October. The heating was turned off and the last two giant pythons died shortly after each other as Werner (1901) recalled. In 1902, the building was finally acquired by three wealthy Viennese scholars: Hans Leo Przibram (1874–1944), Wilhelm Figdor (1866–1938), and Leopold von Portheim (1869–1947). They established the "Biologische Versuchsanstalt" (biological research centre), dedicated to experimental biology. Paul Kammerer (1880–1926) worked there as a trainee under Przibram from 1903. Later, he became Przibram's assistant, setting up terrariums and aquariums in which he conducted his renowned manipulated amphibian experiments (Koestler 1971, 1974, Rieck and Bischoff 2001, Böhme 2005). During the Nazi era (1933–1945), the "Biologische Versuchsanstalt" was closed and the Jewish employees were killed in concentration camps, among them Hans Leo Przibram.

Eröffnungs-Anzeige.

VIVARIUM

II. k. k. Prater, Hauptallee 1.

Direction: **Karl Hagenbeck.**

Eröffnung: Ostersonntag, 18. April 1897.

Grösste Reptilienausstellung der Welt

in künstlerisch ausgestatteten Käfigen.

60 Riesenschlangen von 6—28 Fuss Länge. Riesenschlangen mit Jungen. **Riesenkrokodile** und **Alligatoren** mit Jungen. Hunderte von **Schlangen, Echsen, Schildkröten, Frö-chen, Molchen** etc. in den verschiedensten europäischen und überseeischen Arten.

Geöffnet täglich von 9 Uhr Früh bis Abends.

Entree 30 kr., Kinder 15 kr. 325

Fig. 12. Opening advertisement for Karl Hagenbeck's supposedly 'Largest Reptile Exhibition in the World' at the so-called Vivarium in the Vienna Prater in the newspaper "Wiener Caricaturen" of 18 April 1897.

As a resident of Vienna, Franz Werner (1867–1939) wrote several detailed articles about the animals in the Vivarium under the management of Carl Hagenbeck (Werner 1897a–c, 1899a, 1901). The well-known Austrian zoologist first praised the redesign of the spacious reptile enclosures, which had once served as sea and freshwater aquariums, although no measurements were provided. He summarized: "The whole arrangement is just as pleasing to the eye of the observer as it seems to be to the numerous inhabitants." Werner (1897a) also decidedly described the initial animal population of the Vivarium as visitors encountered them in the various rooms. He began with the large iguanas (*Iguana tuberculata* [= *I. iguana*] and *Ctenosaura acanthura*), which he noted were sluggish due to the lack of sunlight. These were followed by various giant snakes, amongst others Indian Pythons (*Python molurus*), notable for their considerable size. "The largest specimen is probably just under eight meters in length", he wrote, noting that "the colossal heads of these animals were counted repeatedly by the large crowd of visitors surrounding the cage of these giant snakes, who wanted an idea of how many snakes were in the enormous mass." At the same time, Werner (1897a) noted differences between lighter and darker animals, which subsequently prompted him to establish new forms (see below). Other species exhibited were *Python sebae* and *P. regius*, the latter represented by a small specimen that died shortly afterwards, as well as *Corallus* (= *Sanzinia*) *madagascariensis*, which he described as good-natured, in contrast to some *P. molurus*.

In a second bright room containing five large and two small cages, several varieties of *Lacerta* [= *Podarcis*] *muralis* were initially socialized together with *L. agilis* and several *Uromastyx hardwickii*. Another terrarium was inhabited by numerous green anoles (*Anolis carolinensis*), which, according to Werner (1897a), were "among the most interesting animals in the Vivarium" due to their lively behavior and color changes. "All this captivates the interest of spectators to the highest degree, and one could watch these charming lizards for hours", he wrote enthusiastically and claimed that these little reptiles had certainly cured many a Vivarium visitor of their aversion to the reptile world. In the next tank, over a hundred specimens of the Balkan green lizard (*Lacerta viridis* [= *trilineata*] *major*) could be seen enjoying that year's abundance of cockchafer (*Melolontha* sp.) and looking fattened up. This observation suggests that the high losses at that time were also due to excessive over-stocking, as Werner (1897a) described, "there is constant scuffling and hunting", as most of the specimens were males.

Some chameleons were housed in two other terrariums: three magnificent *Chamaeleo* (= *Furcifer*) *pardalis* from Madagascar, whose color change Werner admired, and some *Ch. vulgaris* (= *Ch. chamaeleon*), of which merely nine of the original thirty specimens were still alive. The latter were joined by "an old ocellated lizard [*Timon lepidus*?] from the former Vivarium's stock, which, like the large giant salamander, does not seem to have suffered any damage over time." The Madagascar chameleons shared their enclosure with a young and lively green iguana (*Iguana tuberculata = I. iguana*). *Psammodromus algirus*, *Acanthodactylus vulgaris* (= *A. erythrurus*) and wall geckos (*Tarentola mauritanica*) were also on display in this room.

The next room contained a pool which was home to four enormous alligators. The back wall was covered with small, pretty cages containing beautiful specimens of southern European and native snakes, such as *Tarbophis* (= *Telescopus*), *Coelopeltis* (= *Malpolon*), *Zamenis* (= *Hierophis*) *gemonensis*, *Z. carbonarius* (= *H. viridiflavus*) and *Tropidonophis dahlii*, *Coluber* (= *Zamenis*) *longissimus* and *C. leopardinus* (= *Z. situla*), *Tropidonotus* (= *Natrix*) *natrix* and *N. tessellatus*. In the last of these cages, there were two interesting snakes from Madagascar: *Dromicodryas quadrilineatus* and *Ithycyphus goudoti*. Werner (1897a) regarded these two spe-

cies as confirmation of his belief that "Madagascar reptiles are the most persistent tropical reptiles in captivity".

This room was followed by a dark corridor with large wall terrariums. In the first of these, as well as a young Nile crocodile and a larger African slender-snouted crocodile, there were five beautiful but apparently quite vicious Australian lace monitor lizards (*V. varius*), two mighty water monitor lizards (*V. salvator*), as well as numerous enormous *Testudo* (= *Astrochelys*) *radiata*, *Cinixys* [= *Kinixys*] *belliana* and a *Testudo* (= *Geochelone*) *elegans* from Ceylon—a wild mixture indeed! In the next containers, there were some magnificent *Boa constrictor*, which, a rarity for this species in captivity, as he noted, had almost all made themselves comfortable to eat. There was also a very beautiful anaconda, a large number of *Python molurus*, a large group of European glass lizard (*Ophisaurus* [= *Pseudopus*] *apus*) and, finally, numerous medium-sized alligators aged 3–8 years.

As Werner (1897a) continued, the next room was preferably reserved for amphibians and turtles. A couple of extraordinarily large, beautifully stuffed gharials (*Gavialis gangeticus*), with a strange attachment on the end of the male's snout, aroused the keenest admiration, even among the most discerning reptile connoisseurs. Specimens like these had probably rarely come to Europe, he assumed. Regarding these two crocodiles Hagenbeck (1909) mentioned: "It would be difficult to catch and transport live gharials of this size. I have tried to import young specimens on several occasions, but they all perished on the journey."

Regarding the amphibians exhibited in the Vivarium, Werner (1897a) did not provide a detailed list, but noted that the native species are almost completely represented, alongside some familiar exotic species that aquarium and terrarium enthusiasts have long loved, but which are still new to the general public. He merely mentioned two amphibian species by name: bullfrogs, some of which are of a particularly large size, and four Japanese giant salamanders. Regarding the former, Werner (1897a) mentioned that he had acquired a specimen from the Vivarium and briefly described its behavior, while he characterized the latter as "boring, but very hardy creatures in captivity."

The turtles shared a small aquarium with numerous young alligators. As well as diamondback terrapins (*Malaclemys terrapin*) and various water turtles (*Pseudemys concinna* and *Trachemys scripta*), it housed a large musk turtle (*Sternotherus* sp.), a *Melanochelys trijuga* and a *Mauremys leprosa*. However, Werner (1897a) was not entirely certain about their identification. Next to the gharial rock was a tank containing four alligator snapping turtle (*Macrochelys temminckii*), which he described as "inert, immobile creatures with enormous heads, lying there like stones." Another tank contained numerous *Clemmys guttata*, several *Chrysemys picta*, Australian snake-necked tortoises (*Chelodina longicollis*), musk turtles (*Sternotherus odoratus*) and Eastern mud turtles (*Cinosternum pennsylvanicum* [= *Kinosternon subrubrum*]). Further turtle tanks were in preparation.

The adjoining room contained several animals that were undoubtedly among the highlights of Hagenbeck's reptile exhibition. One large terrarium contained a Madagascar boa (*Boa* [= *Acrantophis*] *madagascariensis*), which had given birth to three young on the journey. They were doing very well and eating diligently. Another snake, a *Corallus* (= *Sanzinia*) *madagascariensis*, had also given birth to a young, which however refused to eat and died a week ago. "The marvelous little thing has passed into my possession," wrote Werner (1897a). Of the numerous other snake species on display in the Vivarium, such as the diamond python (*Morelia spilota*), the bronze snake (*Dendrelaphis tristis*) and the Eastern mud snake (*Farancia abacura*), he particularly emphasized the beautiful green tree snakes (*Dryophis mycterizans* [probably *Ahaetulla nasuta*], from Ceylon), which, along with the anoles, were among the most captivating species in the exhibition. "They too will have disarmed many a reptilian enemy", Werner (1897a) assured. He also shared an interesting observation he had made with two *Leioheterodon madagascariensis*: "Two splendid snouted snakes (…), which were always very voracious, unfortunately died a quarter of an hour after eating European green toads [*Bufotes viridis*] with great appetite. It is curious that these toads, which were always eaten by *Tropidonotus* [= *Natrix*] species preferably and without any harm, were so fatal to these Malagasy snakes." The finale comprised two reticulated pythons, one of which he estimated to be over nine meters long.

Werner (1897a), who congratulated the organizers of the exhibition, concluded his detailed descriptions with two recommendations aimed at educating the public. Firstly, he advised against confining different species together, as laypeople were unable to distinguish between them: "Therefore, it makes no sense to present more than one species of monitor lizards." Alternatively, he recommended stating the distinguishing features or providing a good, albeit sketchy, illustration to help visitors identify the individual species. Secondly, he would like to see more venomous snakes at the exhibition. He also wrote that the first public feeding of giant snakes, monitor lizards, and crocodiles resulted in an unprecedented crowd of visitors and reported from many years of experience that keeping reptiles and amphibians is more difficult than keeping most mammals and birds, because it required a lot of patience, money, skill, and luck.

A few months after the opening of the reptile exhibition, Werner (1897b) provided an update on the animal population at the Vivarium in Vienna. With delight he noted that the exhibits were well received by the public, despite the fact that "[...] precisely those animals are on display which most people detest and loathe as a result of the disgust and horror instilled in them by tradition and education." According to the scholar, this only proved once again that the public is happy to be instructed and elevated to a more understanding view of the animal world, even the inedible kind, if one takes the efforts to provide this instruction in an interesting and vivid way. Hagenbeck's exhibition would therefore indeed

have had a positive effect on the perception and acceptance of reptiles and amphibians among the Viennese population and beyond. According to Werner's (1897b) observations, foreigners also visited the Vivarium, which quickly became one of Vienna's sightseeing attractions.

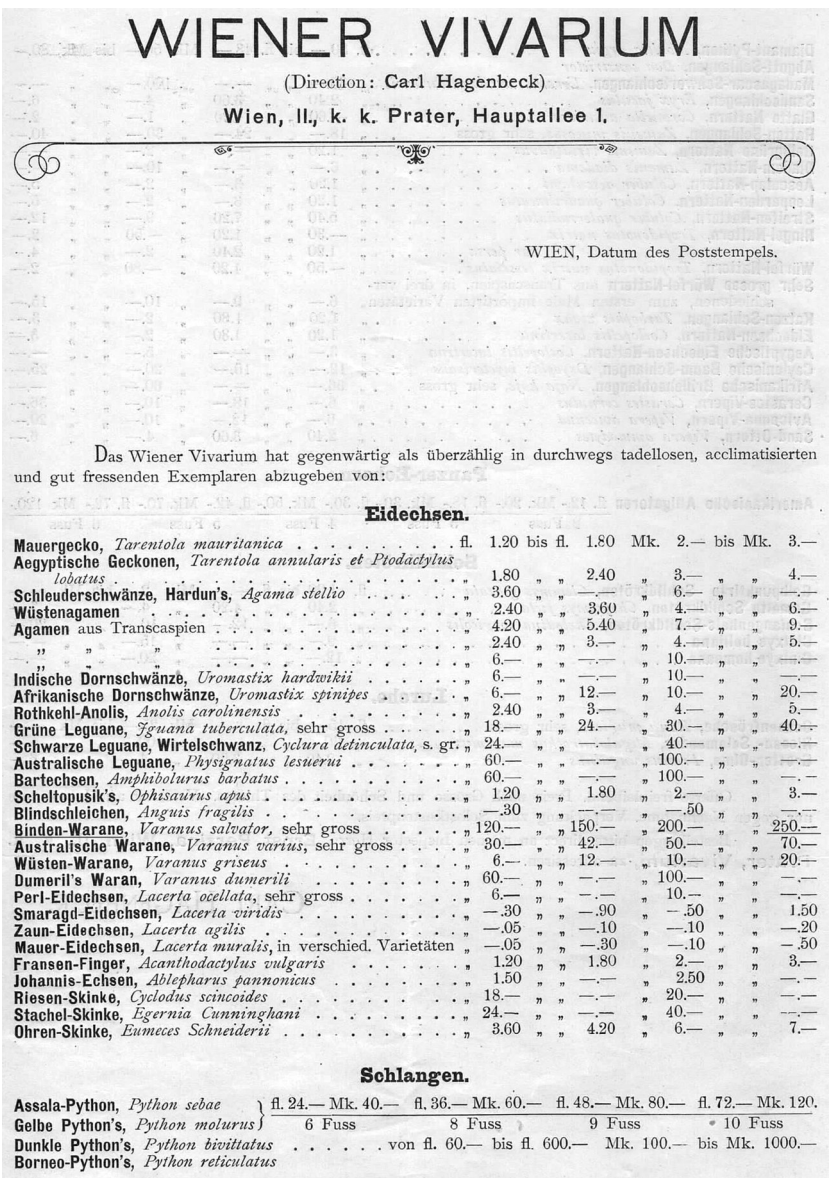
Werner (1897b) began his second report with the tortoises, to which the following new species had been added: *Kinixys homeana* from Central Africa, *Mauremys reevesii* and *Clemmys* (= *Mauremys*) *japonica* from East Asia, *Malacoclemmys lesueurii* (= *Graptemys pseudogeographica*) from the USA, and *Chrysemys* (= *Trachemys*) *ornata* from Mexico, as well as "a beautiful *Testudo tabulata* (= *Chelonoidis carbonarius*?) and two huge spurred tortoises (*T. calcarata* (= *Centrochelys sulcata*) from Central Africa." On the other hand, the Vivarium had suffered a heavy loss with the death of three of the four colossal alligator snapping turtles. Alongside the previous three crocodile species, the Vivarium now displayed "four magnificent Ganges crocodiles", possibly including *Crocodylus palustris* and *C. porosus*. In addition, Werner (1897b) wrote that "two charming young dwarf crocodiles (*Osteolaemus tetraspis*?) have been on display for a short time."

Among the lizards, he mentioned three species of geckos: *Tarentola annularis* and *Ptyodactylus lobatus* (= *P. hasselquistii*) from Egypt, and *Tarentola mauritanica*. Franz Werner kept a specimen of the latter species that laid two eggs in May. However, it is unclear whether he acquired the gecko from the Vivarium. Among the agamids, he emphasized six voracious *Physignathus lesueuri* (= *Intellagama lesueurii*) from Australia, which were associated with rock agamas (*Laudakia* sp.) and *Pogona barbata*. The following smaller species were also shown: *Agama sanguinolenta* (= *Trapelus sanguinolentus*) from Russia, *Agama inermis* (= *Trapelus mutabilis*) from North Africa, *Phrynocephalus mystaceus* from Central Asia, *P. raddei* from Afghanistan–Turkmenistan, and *Amphibolurus muricatus* from Australia. The horned lizard, *Phrynosoma cornutum*, from the USA, was presented as a representative of the iguanids. Among the monitor lizards, Werner (1897b) was impressed by the numerous beautiful desert monitor lizards (*Varanus griseus*) from Egypt and Transcaspia, and the newly arrived, mighty Kabaragoyas (*Varanus salvator*), which, like the old ones, knew how to catch the ground squirrels (*Spermophilus* sp.) frequently given to them with great skill. He also mentioned a particularly beautiful young *Varanus dumerilii* and each one specimen of *Varanus niloticus* and *V. exanthematicus* of considerable size.

Werner (1897b) further reported that the lacertids presented thus far "have been considerably multiplied by enormous ocellated lizards from southern Spain." Among the scincid lizards presented were *Tiliqua scincoides*, *Egernia cunninghami*, and an undetermined *Lygosoma* species from Australia, and predominantly African representatives such as sandfish (*Scincus scincus*), wedge-snouted skinks (*Chalcides sepsoides*), and Schneider's skinks (*Eumeces schneiderii*). Werner (1897b) observed that the latter species, is capable of a distinct color change from light grey to dark brown, with the red and yellow markings remaining unchanged. At the same time, numerous losses were already occurring among the terrarium animals, with only two of the Madagascar chameleons remaining alive, albeit in excellent health, as the zoologist wrote.

Most of the changes were evident among the snakes at the Vivarium. Five more reticulated pythons, "including a wonderful young specimen", and numerous beautiful *Eryx jaculus* were added to the exhibition. The colubrids were represented by water snakes (*Tropidonotus* [= *Fowlea*] *piscator*) from the East Indies (a historical term for the Dutch colonies of present-day Indonesia), Oriental rat snakes (*Zamenis mucosus* = *Ptyas mucosa*) from Sri Lanka, Egyptian diadem snakes (*Zamenis diadema* = *Spalerosophis diadema*) and mighty American rat snakes (*Coluber obsoletus* = *Pantherophis obsoletus*). However, socializing the different species of snake led to cannibalism. Werner (1897b) reported that the American rat snakes "consume not only young chickens, but also diadem snakes with relish." Another problem was the high mortality rate at the Vivarium. For example, it was recorded about the diademed sand snake (*Lytorhynchus diadema*) that "all of them, as well as the four beautiful king snakes (*Lampropeltis*?), the American rat snakes and the *Farancia*, have already died, while the numerous beautiful diadem snakes have largely succumbed to the particularly frequent and murderous mouth rot that occurs in this species." Werner (1897b) found it "(...) inexplicable why the snakes, kept in exemplary conditions, sometimes perished with frightening speed, while the generally much more sensitive lizards suffered only a few deaths and not a single one of the more than one hundred *Anolis* had died."

The green tree snakes (presumably *Ahaetulla nasuta*), whose feeding Werner (1897b) vividly described, also suffered from cannibalism due to overcrowding in the terrarium. When Inspector Perzina, who looked after these marvelous animals with the greatest care according to Werner, threw about 30 live wall lizards in the terrarium, the next moment about 60 snakes pounced on their victims and devoured them once the poison had taken effect. According to Werner (1897b), the snakes seemed to feel extremely comfortable in their home, so much so that they occasionally devoured a smaller specimen of their own species out of sheer comfort. In addition to these public favorites, one of the Vivarium's most popular showpieces was an "uraeus" or "Kleopatra snake" (*Naja haje*), as Werner (1897b) called it, due to its special history. This specimen formerly belonged to a travelling snake tamer who performed with venomous and giant snakes. However, when the venomous fangs of the cobra grew back, the tamer no longer dared to appear with it or to remove its fangs. The director of the vaudeville theatre in question considered the tamer's productions to be too uninteresting and unexciting for the audience without the sensational show act with the "dancing" cobra. Therefore, he



WIENER VIVARIUM

(Direction: Carl Hagenbeck)

Wien, II., k. k. Prater, Hauptallee 1.

WIEN, Datum des Poststempels.

Das Wiener Vivarium hat gegenwärtig als überzählig in durchwegs tadellosen, acclimatisierten und gut fressenden Exemplaren abzugeben von:

Eidechsen.

Mauergecko, *Tarentola mauritanica*	fl.	1.20	bis fl.	1.80	Mk.	2.—	bis Mk.	3.—
Aegyptische Geckonen, *Tarentola annularis et Ptodactylus lobatus*	„	1.80	„ „	2.40	„	3.—	„ „	4.—
Schleuderschwänze, Hardun's, *Agama stellio*	„	3.60	„ „	—.—	„	6.—	„ „	—.—
Wüstenagamen	„	2.40	„ „	3.60	„	4.—	„ „	6.—
Agamen aus Transcaspien	„	4.20	„ „	5.40	„	7.—	„ „	9.—
„ „ „	„	2.40	„ „	3.—	„	4.—	„ „	5.—
„ „ „	„	6.—	„ „	—.—	„	10.—	„ „	—.—
Indische Dornschwänze, *Uromastix hardwikii*	„	6.—	„ „	—.—	„	10.—	„ „	—.—
Afrikanische Dornschwänze, *Uromastix spinipes*	„	6.—	„ „	12.—	„	10.—	„ „	20.—
Rothkehl-Anolis, *Anolis carolinensis*	„	2.40	„ „	3.—	„	4.—	„ „	5.—
Grüne Leguane, *Iguana tuberculata,* sehr gross	„	18.—	„ „	24.—	„	30.—	„ „	40.—
Schwarze Leguane, Wirtelschwanz, *Cyclura detinculata,* s. gr.	„	24.—	„ „	—.—	„	40.—	„ „	—.—
Australische Leguane, *Physignatus lesuerui*	„	60.—	„ „	—.—	„	100.—	„ „	—.—
Bartechsen, *Amphibolurus barbatus*	„	60.—	„ „	—.—	„	100.—	„ „	—.—
Scheltopusik's, *Ophisaurus apus*	„	1.20	„ „	1.80	„	2.—	„ „	3.—
Blindschleichen, *Anguis fragilis*	„	—.30	„ „	—.—	„	—.50	„ „	—.—
Binden-Warane, *Varanus salvator,* sehr gross	„	120.—	„ „	150.—	„	200.—	„ „	250.—
Australische Warane, *Varanus varius,* sehr gross	„	30.—	„ „	42.—	„	50.—	„ „	70.—
Wüsten-Warane, *Varanus griseus*	„	6.—	„ „	12.—	„	10.—	„ „	20.—
Dumeril's Waran, *Varanus dumerili*	„	60.—	„ „	—.—	„	100.—	„ „	—.—
Perl-Eidechsen, *Lacerta ocellata,* sehr gross	„	6.—	„ „	—.—	„	10.—	„ „	—.—
Smaragd-Eidechsen, *Lacerta viridis*	„	—.30	„ „	—.90	„	—.50	„ „	1.50
Zaun-Eidechsen, *Lacerta agilis*	„	—.05	„ „	—.10	„	—.10	„ „	—.20
Mauer-Eidechsen, *Lacerta muralis,* in verschied. Varietäten	„	—.05	„ „	—.30	„	—.10	„ „	—.50
Fransen-Finger, *Acanthodactylus vulgaris*	„	1.20	„ „	1.80	„	2.—	„ „	3.—
Johannis-Echsen, *Ablepharus pannonicus*	„	1.50	„ „	—.—	„	2.50	„ „	—.—
Riesen-Skinke, *Cyclodus scincoides*	„	18.—	„ „	—.—	„	20.—	„ „	—.—
Stachel-Skinke, *Egernia Cunninghani*	„	24.—	„ „	—.—	„	40.—	„ „	—.—
Ohren-Skinke, *Eumeces Schneiderii*	„	3.60	„ „	4.20	„	6.—	„ „	7.—

Schlangen.

Assala-Python, *Python sebae*	fl. 24.—	Mk. 40.—	fl. 36.—	Mk. 60.—	fl. 48.—	Mk. 80.—	fl. 72.—	Mk. 120.
Gelbe Python's, *Python molurus*	6 Fuss		8 Fuss		9 Fuss		10 Fuss	
Dunkle Python's, *Python bivittatus*	von fl. 60.—		bis fl. 600.—		Mk. 100.—		bis Mk. 1000.—	
Borneo-Python's, *Python reticulatus*								

Fig. 13. Sales list for Carl Hagenbeck's reptile exhibition at the Vienna Vivarium.

threatened to dismiss the poor tamer, who was so upset that he ran away. However, he left a bag containing the venomous snake in an inn, along with several unpaid debts. When an unsuspecting parlor maid accidentally freed the dangerous snake from its prison, Inspector Perzina had to travel all the way from Vienna to capture it. At that time, the Vivarium had adders and nose-horned vipers (*Vipera ammodytes*?) as well as *Cerastes cerastes* and *C. vipera* from North Africa. Thus, Carl Hagenbeck had followed Werner's (1897a) recommendation for venomous snakes in the exhibition, whether consciously or unconsciously.

As a businessman, Carl Hagenbeck used the exhibition at the Vienna Vivarium to sell amphibians and reptiles that were "currently available as surplus specimens in perfect condition, fully acclimatized and ready to eat" (Hagenbeck, undated [1897/1898], see Fig. 13). Unlike earlier price lists, many smaller species suitable for private terrarium keeping were included this time, although several species were described as very large specimens. So, size obviously still played an important role. In total, 63 species were offered for sale, including 28 lizard, 26 snake, one crocodile, five tortoise, and three amphibian species. These included olms for 4–6 marks, bullfrogs for 25 marks, and Japanese giant salamanders for 100 marks (equivalent to around 800 euros or 940 dollars, respectively). Orders were to be placed directly with Inspector Perzina on site.

All species offered were given German and scientific names, except for the "American alligators", the "desert agamids" and the "agamids from Transcapia", whose taxonomic identification was apparently unclear. Only two tortoise species, *Cinixys* (= *Kinixys*) *belliana* and *C. homeana*, were not given common names. As in the past, size and origin were the main factors influencing the price. While young native grass snakes (*Natrix natrix*) and dice snakes (*N. tessellata*) were offered for as little as 50 and 80 pfennigs respectively, large Asian pythons cost up to 1,000 marks (approximately 8,000 euros or 9,400 dollars today). Apart from young native sand or wall lizards, which cost just 10 pfennigs, foreign lizards such as wall geckos (*Tarentola mauritanica*), European glass lizard, and fringe-fingered lizard were available for as little as two marks, while large Asian water monitors cost up to 250 marks (around 2,000 euros or 2,350 dollars today). Yellow-spotted turtles (*Clemmys guttata*) from North America were also available for just 2 marks each. Snake-necked tortoises (*Chelodina longicollis*) from Australia and *Kinixys homeana* from Africa cost 20 marks each. Overall, European and African species dominated Hagenbeck's range at the Vivarium in Vienna; only a few species of South American and Australian reptiles were represented.

In his third report on the Vivarium, Werner (1899a) once again made specific reference to the animal population, mentioning that, among the turtles shown the previous year, there were numerous beautiful *Hydraspis hilairei* (= *Phrynops hilarii*) from Argentina, which, like *Chelodina longicollis*, were some of the most durable and voracious turtles. However, he also noted that one of the two hawksbill turtles from the Gulf of Mexico, "a beautiful creature", was kept alive for a while and even fed, but it did not survive for long, as did a rather handsome *Thalassochelys* (= *Caretta*) *caretta*. He provided a similar negative account of the North American spotted turtle and *Chrysemys picta*, most of which had mean-

while died, thereby highlighting the obvious knowledge gaps that still existed regarding the husbandry conditions of these species at the time.

According to Werner (1899a), there were also losses among the crocodiles on display at the Vivarium. However, he noted that they had generally fared well, which speaks to the popularity of these giant reptiles at the time. Of the various geckos exhibited, Franz Werner was particularly impressed by the Malagasy *Phelsuma laticauda*, writing regretfully: "Of the well over 100 *Phelsuma* specimens, unfortunately only a few survived, and not a single specimen of the other three species [i.e., *Hemidactylus mabouia*, *H. platyurus* and *Gehyra mutilata*] came back to Hamburg alive." Regarding the sandfish skinks, which "crawled towards their inevitable death with resignation", Werner (1899a) stated melancholically: "The reptile keeper who is able to permanently acclimatize this species to captivity has yet to come." And he went on to say: "*Physignathus*, *Heloderma*, *Tiliqua*, *Egernia,* and most monitor lizards have done excellently, on the other hand. Desert monitors, however, are mostly truly miserable creatures, as are some other monitor lizards which I would consider to be *V. bengalensis*—they literally starved themselves to death."

Unfortunately, the snakes in Hagenbeck's reptile exhibition had similarly high mortality rates to the lizards, as the author wrote: "As in the previous year, there was high mortality among the Assalas [= rock pythons]. This year, it was the *Python molurus* that suffered, despite their usual durability. I suspect these truly indestructible snakes were killed by a lack of sunlight or constant, excessively high temperatures.[21] (…) The beautiful anacondas, all the diamondback snakes and the ball pythons also perished." Finally, Werner (1899a) repeatedly referred to "the charming green tree snakes [presumably *Dryophis mycterizans* (= *Ahaetulla nasuta* from Ceylon), as mentioned in the price list], which caused a sensation the previous year and which the public therefore always asked for." However, he also noted that the tree snakes held out far better this time than in the previous year, but at the same time speculated that they probably all had died on the way back to Hamburg. From a report by the ambitious terrarium keeper Johannes Berg (1901) from Lüdenscheid we learn, however, that this prophecy was not entirely fulfilled. He emphasized the attractiveness of the Asian whip snakes, two specimens of which he had received from Hamburg on 20 May 1899. According to the unnamed dealer, who may have been the Umlauff company, the two snakes came from a consignment of over 100 specimens that Hagenbeck had imported from Ceylon for the Vienna Vivarium about a year earlier, and that these were the only ones to survive. Berg (1901) provided a detailed account of caring for his snakes and critically compared this with information from contemporary literature.

Regarding the amphibians at the Vivarium, Werner (1899a) wrote briefly and laconically that they were "not worth mentioning or had been discussed before."

In his report on the end of the Vienna Vivarium ("Des Wiener Vivariums Ende"), Werner (1899a) also provided a summary of the total number of amphibians and reptiles exhibited by Hagenbeck in the Austrian capital. According to Franz Werner, a total of 179 species were exhibited in just under two years: This included 32 tortoise, six crocodile, two chameleon, 51 lizard, 54 snake (including 12 giant snake), 17 frog, as well as 17 newt and salamander species. Werner expressed his regret that Hagenbeck's highly interesting reptile exhibition at the Vivarium in the Vienna Prater, which surpassed all continental collections of living reptiles in beauty and richness, had to close. He blamed the lamentable apathy of the Viennese public for this. Additionally, the ban on public snake feedings had driven away many curious visitors (Werner 1901). Nevertheless, he praised Hagenbeck's efforts to promote an interest in the natural sciences among the Viennese public and thanked him on behalf of a small minority for providing "so many opportunities for interesting observations and so many rare reptiles, some of which had never been imported alive before." At the same time, Werner (1899a), who described himself as a regular visitor to the Vivarium, criticized the fact that the public was not interested in seeing new or interesting animal species, but that their viewing needs were completely satisfied by the Arctic Ocean panorama with the young, trained walrus Oskar and by giant snakes and crocodiles. For him and a few other herpetophiles, however, it was precisely these novelties that were the focus of their interest. Unfortunately, it was not possible to trace any photographs of the reptile exhibition at the Vivarium.

Hagenbeck's Influence on Reptile Keepers and Herpetologists

The influence of the Hagenbeck animal trading company on the fields of herpetology and herpetoculture is difficult to assess. Therefore, it is only possible to provide examples of individual terrarium keepers and scientists, and their contributions to the study of amphibians and reptiles, which might not have been possible without the support of this Hanseatic company. The problem is that very few articles mention the dealer from whom the animals were originally acquired. Johann von Fischer, said to have kept 205 species of amphibian and reptile, has already been quoted several times above from his renowned book "Das Terrarium (…)". This suggests that he obtained various species of tortoise (and probably other reptiles and amphibians) from Hagenbeck, as well as from Umlauff and other animal dealers. Von Fischer published over 90 articles about his many years of experience in keeping and breeding amphibians and reptiles in the semi-popular journal "*Der Zoologische Garten*" (Adler 2012). He dedicated his terrarium book to Professor Dr Friedrich Carl Noll (1832–1893), the editor at the time, in friendly reverence. Dr. Arthur Hanau (date of birth unknown) from St Gallen in Switzerland also published a short report on his terrarium pets in the same journal. Having acquired an *Eryx jaculus* from the Vienna Vivarium, he reported on its feeding habits (Hanau 1898).

Another ambitious reptile keeper who provided detailed reports on his observations of several species in captivity around the turn of the century was Pedro de Grijs (or de Grys 1864–1940), a Hamburg merchant (Bischoff 2024). He acquired some species, such as an Australian water dragon (*Intellagama lesueurii*), from Hagenbeck's reptile exhibition at the Vienna Vivarium. De Grijs (1901: 100) described the habits of his persistent pet in detail, whose price was 60–100 marks according to the price list by Hagenbeck (undated [1897/1898]). Later, Franz Werner, Robert Mertens (1894–1975), and Arthur Loveridge (1891–1980) dedicated *Gonionotophis degrijsi*, *Cryptoblepharus boutonii degrijsi*, and *Cynisca degrijsi* to him. While the former two are synonyms of *Gracililima nyassae* (Günther, 1888) and *Cryptoblepharus quinquetaeniatus* (Günther, 1874), respectively, the latter is considered a valid species today. He is also the author of the rare agamid *Hypsicalotes kinabaluensis* from Borneo (de Grijs 1937).

As can be seen from Franz Werner's (1897a, b; 1899a) detailed articles on the Hagenbeck exhibition in the Vienna Prater, the display of reptile and amphibian species greatly influenced this renowned zoologist.[22] We owe him not only a great deal of information about the Vivarium itself, but also about its numerous species exhibited there. For example, Werner (1898) observed the feeding behavior of *Ithycyphus goudoti* at the Vivarium and documented it in an article on "(…) die Giftigkeit der Trugschlangen (Opisthoglypha)". In a report "Über einige noch unbeschriebene Reptilien und Batrachier" (on some as yet undescribed reptiles and batrachians), Werner (1897c) even went so far as to establish a series of new varieties (subspecies) of the dice snake from Transcaspia, based on animals he had previously seen at the Vivarium and received from Inspector Perzina for study. He dedicated the first of these three forms to the initiator of the reptile exhibition, naming it *Tropidonotus tessellatus* (= *Natrix tessellata*) var. *hagenbecki*.[23] On the other side, following his "reptile hunt in Egypt", Werner (1899b) presented two young Nile foxes (*Canis niloticus*) to the Vivarium after providing them with milk and meat.

Elsewhere, Werner (1899c), who was also apparently an avid terrarium enthusiast, made the following statement: "As I already surmised two years ago on the basis of Hagenbeck's living specimens, three distinct varieties of *Python molurus* can be identified: *Python molurus* var. *ocellatus*, *Python molurus* var. *intermedia*, and *Python molurus* var. *sondaica*." The latter taxon was based on a Sumatran specimen that he had seen at Hagenbeck in Hamburg in April 1898.[24]

In addition, Werner (1900) summarized his observations on the deterioration of already acclimatized giant snakes in captivity and concluded that "such experiences, I have had with various consistently healthy snakes purchased from the Vivarium in Vienna, partly directly and partly second-hand, while the animals purchased from Fockelmann, Stüve, Umlauff, and Breitwieser in Hamburg form the basis of my collection of living boids." This statement indicates that Werner purchased terrarium animals from various dealers from the city of Hamburg at that time, of which Umlauff and Hagenbeck seem to have been the most important suppliers. For example, Werner (1903) also acquired an anaconda from Hagenbeck. Therefore, it is not surprising that Werner (1912, 1913) referred to Hagenbeck four times in his volume of "*Die Lurche und Kriechtiere*" (the Amphibians and Reptiles) in the famous series "Brehms Tierleben" (Brehm's Animal Life), including once in relation to the extraordinary coiling performance of giant snakes described by Carl Hagenbeck (1909) in his biography. By comparison, de Grijs from Hamburg (see above) is mentioned thirty-five times.

Herpetological Specimens from Hagenbeck in Natural History Museums

Since large reptile species such as crocodiles, giant snakes, and turtles also attract the attention of visitors in natural history museums, the directors of these research and exhibition facilities, like in zoos, were always interested in acquiring the most spectacular specimens possible, even if in these cases the focus may have been less on scientific content and more on the attractiveness of the exhibits.[25] Only two natural history museums shall be mentioned here briefly as examples for Carl Hagenbeck's herpetological legacy.

The extraordinary taxidermy group of two large gharials at the Natural History Museum Vienna (NHMW, Fig. 14) has been discussed in detail by Koch and Schweiger (2023a, b). Although their origin was unknown until recently, Carl Hagenbeck's biography (1909) clearly indicates that these giant crocodile skins were originally part of his reptile exhibitions. Hence, they had been on display in the Prater Park Vivarium in Vienna since Easter 1897 (see above), where the director of the NHMW, Franz Steindachner (1834–1919), most likely saw them alongside Franz Werner (1897a). Steindachner then acquired them for his natural history museum due to their high display value. In addition to these spectacular specimens on display, a search of the herpetological collection database at the museum in Vienna revealed that the name 'Hagenbeck' is mentioned 22 times under 'origin' or 'collector' (Koch and Schweiger 2023a, b).

Also the Senckenberg Museum in Frankfurt obtained large reptiles from Hagenbeck. As early as 1907, the museum purchased a 6.75-metre-long reticulated python from Hagenbeck's Zoo, and its skeleton was exhibited in Frankfurt (Bellosa et al. 2007, p. 51). In December 1919, Otto zur Strassen (1869–1961), the museum's director at the time, received a telegram from an unknown employee of Carl Hagenbeck offering him a 6.2-metre-long reticulated python from an animal exhibition in Essen-Rüttenscheid. Zur Strassen purchased the python for 250 marks. Apparently, he had previously requested a specimen measuring 9 meters or an anaconda. The largest reticulated python in the exhibition at the time was said to measure 7.8 meters (Anonymous 1919).

Fig. 14. The two huge Ganges gharials by Carl Hagenbeck and the company J.F.G. Umlauff in Room XXVIII of the Natural History Museum in Vienna are among the largest exhibits of this crocodile species worldwide. Photo.: Wilhelm Bauer-Thell (NHMW).

These herpetological examples could probably be supplemented by many others in natural history collections across Germany and beyond. Together with the other points made in this article, this shows that Carl Hagenbeck's animal trading company has been largely neglected in historical studies of herpetology, herpetoculture, and other research fields, and that its influence on scientists, reptile keepers and the general public deserves greater recognition. This includes the colonial heritage of this Hanseatic animal trading company and others (Andratschke et al. 2024). The author therefore hopes that this article will stimulate further research on this topic.

Acknowledgments

I wish to express my sincere gratitude to Hermann Reichenbach of the Hagenbeck archive in Hamburg for kindly providing Carl Hagenbeck's price lists and further information, without which a significant part of this article would not have been possible. He also generously allowed the use of a photograph, which Nigel T. Rothfels (Milwaukee) kindly brought to my attention. I would also like to thank Silke Schweiger (Natural History Museum, Vienna) for her cooperation on our joint article about the two gharials from Hagenbeck and owe her information from the herpetological database. Jakob Hallermann (Museum of Nature Hamburg, LIB) kindly provided literature on Pedro de Grijs and Wolfgang Böhme (Museum Koenig Bonn, LIB) drew my attention to Werner's snake descriptions. Ute Nüsken is acknowledged for generously sending me PDFs of old Hagenbeck magazines and I am indebted to Werner Schwarz of the Wien Museum for checking their collections for photographs of Hagenbeck's reptile exhibition at the Vivarium. And finally, I sincerely thank Wolfgang Bischoff (Magdeburg) for his patience with me on the original German version of this article for the *Mertensiella* volume. The manuscript benefitted from critical comments by Silke Schweiger and René Honegger.

Notes

1. The name Hagenbeck is not listed in Adler's (1989, 2007, 2012) "Contributions to the History of Herpetology" and it is only shortly mentioned in the two *Mertensiella* volumes by Rieck et al. (2001) and Bischoff (2018), which focus on „the history of herpetology and herpetoculture in German-speaking countries". In reflecting on the impact of the Hanseatic trading house on terrariums and herpetology, I will focus primarily on the time of Carl Hagenbeck (1844–1913). Consequently, the reptiles at Hagenbeck's Zoo will only be discussed in its early years.

2. Founded in 1907, "Tierpark Hagenbeck" (Hagenbeck's Zoo) should not be confused with the Zoological Garden in Hamburg, which opened already in 1863 as the fifth zoo in Germany. This zoo existed until 1930 and is now the site of the Planten un Blomen park. Werner (1899c) praised the first Hamburg Zoo, saying that it generally impresses him with the beauty and good appearance of its interesting reptile exhibition.
3. For more details about Carl Hagenbeck see, e.g. Leutemann (1887), Hagenbeck (1909), Sokolowsky (1928), Zukowsky (1929, 1954), Niemeyer (1972), and Dittrich and Rieke-Müller (1998).
4. Dörries had previously served as the first feed master at the Zoological Garden in Hamburg, which had been founded in 1863, but had to close in 1930, partly due to competition from Hagenbeck's Zoo (Weidner 1969).
5. Among the many animals he saw at Hagenbeck, Meyer (1873) observed a quagga (*Equus qu. quagga*), probably one of the last specimens of this iconic subspecies of zebra, which was declared extinct just ten years later.
6. The historical "Hamburg foot" (Hamburger Fuß) measured 28.6 cm (Moznik 1848). However, it is possible that Hagenbeck used the English foot measurement of 30.48 cm as the basis for his calculations (see Koch and Schweiger 2023a).
7. Note that the Komodo dragon (*V. komodoensis*) was not known at the time and was not scientifically described until 1912.
8. However, the natural history trading business of J. F. G. Umlauff (1833–1889), who was married to Carl Hagenbeck's sister Johanna Friederike Caroline (1839–1918) was not explicitly mentioned, although dead animals were also regularly sent to his brother-in-law to be stuffed or skeletonized for resale (Koch 2024).
9. Johann von Fischer ran a pet shop (including reptiles) in Gotha from around 1873. Previously, he had owned a large private collection of reptiles, mainly tortoises, in St Petersburg. In 1878, he became director of Düsseldorf's zoological garden, founded only two years earlier (Adler 2012), where Carl Hagenbeck's first reptile exhibition was held in 1880 (Dittrich and Rieke-Müller 1998). Alongside Hagenbeck and Umlauff, von Fischer (1884) was aware of various other European animal dealers, such as Charles Jamrach (1815–1891) and Abrahms in London, who specialized in Australian reptiles.
10. Von Fischer (1884: 101) made the following observation regarding the availability of chameleons and many other reptiles for herpetoculture: "Before 1876, these interesting lizards were very rare or unavailable, but in 1879, thousands of them were brought onto the market. Abrahams in London alone sent me several hundred in one consignment. They flooded the market and the prices fell to an insignificant amount."
11. However, Leutemann's (1887: 51) account makes it clear that Carl Hagenbeck did not disdain small species either. When receiving a group of Nubians for a new ethnological exhibition in June 1876, the businessman took advantage of his time in Trieste to purchase thousands of tortoises (probably *Testudo hermanni*), which were sold as soup meat at the local market, and transport them to Hamburg.
12. In this context, Leutemann (1887: 33) reported on the capture of snakes for Hagenbeck in India and the associated mortality during their long journey to Germany: "Thus, a snake hunt was organized for H. in the area of the Ganges estuaries (…), during which the grass was set on fire and the snakes were driven into nets. They were then placed in boxes or tied to bamboo poles, and brought to Calcutta first. Over 600 snakes were caught in total, 374 of which arrived alive in Hamburg."
13. Hagenbeck's popularity was probably also fueled by the fact that some young crocodiles once escaped from a steamer during a transport of animals, "plunging head over heels into the river Elbe", as reported years later in the 9 September 1913 edition of the "Hamburger Fremdenblatt" (Anonymous 1913). This event, which inspired the folk song "Draußen auf der Elbe schwimmt ein Krokodil" (A crocodile swims out on the River Elbe, www.volksliederarchiv.de), occurred in the summer of 1888. J. F. G. Umlauff (1888) immediately and skillfully seized the opportunity to advertise "small living crocodiles" in his naturalia and pet shop.
14. Gronen (1884) estimated that 6,000 young alligators were caught in Florida each year. The price was 25 dollars for 100 specimens, or 75 cents to 1 dollar each. Specimens measuring 10–15 feet cost 25 to 60 dollars Réaumur.
15. Von Fischer (1884) also noted that the bullfrog was widespread in the trade and imported annually: "It is always available at Karl Hagenbeck and other pet shops for 20 to 25 marks per specimen."
16. As these were often trade names, it is sometimes impossible to determine the taxonomic identity of the species in question. Even when scientific names are used, which appear to be mostly based on Boulenger's catalogues, it remains unclear which species were actually involved. It was only later that the Hagenbeck company employed scientifically trained zoologists such as Alexander Sokolowski (1866–1949) and Ludwig (Karl) Zukowski (1888–1965). However, neither of them were pure herpetologists, although Sokolowski received his doctorate in 1899 with a thesis on the external covering of lacertilians ("über die äussere Bedeckung bei Lacertilien: ein Beitrag zur Phylogenie der Lacertilien") and was one of the founding members of the "Association of terrarium enthusiasts" (Bund der Terrarienfreunde) in 1908 (Rieck 2001: 53). Strangely enough, Carl Hagenbeck himself became a member of the "Association of reptile and amphibian friends" (Bund der Reptilien- und Lurch-Freunde), which was founded in 1914, even though he had died the previous year (Rieck 2001: 56).
17. See also Werner (1904), who remarked: "The desert monitor is available for 4–5 Mk., *V. bengalensis* for about 25 Mk., *V. varius* for 30–50 Mk., and *V. niloticus* for 15–25 Mk. Specimens of *V. salvator* suitable for terrariums are rarely available in the trade and cost as much as the rarer species." Franz Werner kept *V. griseus* alongside *V. varius* and *V. bengalensis* for six years, whereas he studied *V. niloticus* and *V. exanthematicus* in the Vienna Vivarium.
18. While scientific names were not italicized in the previous two price lists, as is the consensus, this is now the case and gives the commercial enterprise an academic feel.
19. It is said that a precursor event took place in Dresden's zoological garden as early as 1878/79 (Dittrich and Rieke-Müller 1998). And Ernst Pinkert (1844–1909) from Leipzig exhibited a group of Mississippi alligators and Alligator snapping turtles in a fenced pond in the summer of 1877, even before the Leipzig Zoo was founded. He took these giant reptiles over on commission from Carl Hagenbeck (Engelmann 2004).
20. The opening advertisement in the 18 April 1897 edition of the newspaper "Wiener Caricaturen" announced giant crocodiles ("Riesenkrokodile") as a special attraction. These were undoubtedly the two large gharial specimens that Hagenbeck (1909) later mentioned in his memoirs (see above and at the end of the article).

21. Werner (1899a: 37) considered 29° Réaumur (equivalent to 36.25° Celsius or 97.25° Fahrenheit) to be the maximum temperature that may occur in the cage, while it is most comfortable between 16° and 25° [equivalent to 20°–31° Celsius or 68–87.8° Fahrenheit].
22. For example, Werner (1899a: 14) reported on the durability of *Chelodina longicollis*, "of which I bought a large specimen at the Vivarium two years ago, thinking it was dead, but it is still alive today and is the most affectionate turtle I have ever had."
23. Today, most of the new taxa described by Werner (1897c) are considered synonyms of the nominate form *Natrix t. tessellata* (Uetz et al. 2025).
24. Jacobs et al. (2009) doubted the origin Sumatra and consider this taxon to be a nomen nudum.
25. From the late 1930s to the late 1990s, the Alexander Koenig Museum in Bonn also displayed an impressive six-meter-long rock python in its exhibition (Koch 2022), which the author remembers well from his childhood.

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